

SECTION I. (AMENDMENTS TO THE CLAIMS)

A listing of claims 1-74 of the present application, as amended herein with markings to show changes made, is provided below:

1. (Currently amended) An isolated nucleic acid molecule comprising a neocentromere, wherein said neocentromere ~~is derived from a~~ comprises a region of an eukaryotic chromosome and does not have any detectable alpha satellite DNA as determined by fluorescent in situ hybridisation (FISH), wherein said nucleic acid molecule ~~is at least 80 kb in length and either (i) hybridizes to~~ comprises SEQ ID NO: 3 ~~under high stringency conditions which comprise from at least about 31% to at least about 50% v/v formamide and from at least about 0.01M to at least about 0.15 salt for hybridisation, and at least about 0.01M to at least about 0.15M for washing, or (ii) is at least 80% identical with SEQ ID NO: 3, and wherein said nucleic acid molecule, when introduced into a cell, is capable of replicating, acting as an extra-chromosomal element and segregating with cell division.~~
2. (Previously presented) The isolated nucleic acid molecule according to claim 1 wherein the eukaryotic chromosome is a mammalian chromosome.
3. (Previously presented) The isolated nucleic acid molecule according to claim 2 wherein the chromosome is a human chromosome.
4. (Previously presented) The isolated nucleic acid molecule according to claim 2 wherein the nucleic acid molecule binds to centromeric binding proteins (CENP)-A and -C or antibodies thereto.
5. (Previously presented) The isolated nucleic acid molecule according to claim 3 wherein the chromosome is human chromosome 10.

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6. (Previously presented) The isolated nucleic acid molecule according to claim 5 wherein said neocentromere comprises a region mapping between q24 and q26 on said human chromosome 10.
7. (Previously presented) The isolated nucleic acid molecule according to claim 3 wherein said human chromosome is a mardel (10) chromosome.
- 8-14. (Cancelled).
15. (Previously presented) The isolated nucleic acid molecule of claim 1 wherein said nucleic acid molecule is in linear form and co-introduced into a cell together with a telomeric sequence.
16. (Currently amended) The isolated nucleic acid molecule according to claim 15 wherein the ~~the~~-eukaryotic chromosome is a mammalian chromosome.
17. (Previously presented) The isolated nucleic acid molecule according to claim 16 wherein said nucleic acid molecule binds to CENP-A and CENP-C antibodies.
18. (Previously presented) The isolated nucleic acid molecule according to claim 16 wherein the mammalian chromosome is human chromosome 10.
19. (Previously presented) The isolated nucleic acid molecule according to claim 18 wherein the neocentromere comprises a region mapping between q24 and q26 on said human chromosome 10.
20. (Previously presented) The isolated nucleic acid molecule according to claim 15 wherein said chromosome is a human mardel (10) chromosome.
- 21-27. (Cancelled).
28. (Currently amended) An isolated nucleic acid molecule comprising a human neocentromere which does not have any detectable alpha satellite DNA as determined by fluorescent in situ hybridisation (FISH), wherein said nucleic acid molecule is-at

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~~least 80 kb in length and either (i) hybridizes to SEQ ID NO: 3 under high stringency conditions which comprise from at least about 31% to at least about 50% v/v formamide and from at least about 0.01M to at least about 0.15 salt for hybridisation, and at least about 0.01M to at least about 0.15M for washing, or (ii) is at least 95% 80%-identical with SEQ ID NO: 3, and wherein said nucleic acid molecule, when introduced into a cell, is capable of replicating, acting as an extra-chromosomal element and segregating with cell division.~~

29. (Cancelled).
30. (Previously presented) The isolated nucleic acid molecule according to claim 28 wherein the nucleic acid molecule binds to centromeric binding proteins (CENP)-A and -C or antibodies thereto.
31. (Currently amended) The isolated nucleic acid molecule according to claim 30 wherein said neocentromere ~~is derived from~~ comprises a region of human chromosome 10.
32. (Previously presented) The isolated nucleic acid molecule according to claim 31 said neocentromere comprises a region mapping between q24 and q26 on said human chromosome 10.
33. (Currently amended) The isolated nucleic acid molecule according to claim 28 wherein said neocentromere ~~is derived from~~ comprises a region of a human mardel (10) chromosome.
- 34-39. (Cancelled).
40. (Previously presented) A genetic construct comprising an origin of replication for a eukaryotic cell and the nucleic acid molecule of claim 1, operably linked to telomeric nucleotide sequences functional in the cell in which the genetic construct is to replicate and wherein said genetic construct, when introduced into a cell, is a replicating, extra-chromosomal element which segregates with cell division.

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41. (Previously presented) The genetic construct according to claim 40 wherein the eukaryotic chromosome is a mammalian chromosome.
42. (Previously presented) The genetic construct according to claim 41 wherein the eukaryotic chromosome is a human chromosome.
43. (Previously presented) The genetic construct according to claim 42 wherein the nucleic acid molecule binds to CENP-A and -C or antibodies thereto.
44. (Previously presented) The genetic construct according to claim 43 wherein the neocentromere is from human chromosome 10.
45. (Previously presented) The genetic construct according to claim 44 wherein the neocentromere comprises a region between q24 and q26 on said human chromosome 10.
46. (Previously presented) The genetic construct according to claim 44 wherein said chromosome is a human mardel (10) chromosome.
- 47-60. (Cancelled).
61. (Currently amended) An isolated nucleic acid molecule comprising a eukaryotic neocentromere, wherein said neocentromere does not have any detectable alpha satellite DNA as determined by fluorescent in situ hybridisation (FISH), wherein said nucleic acid molecule ~~is at least 80 kb in length and either (i) hybridises to SEQ ID NO: 3 under high stringency conditions which comprise from at least about 31% to at least about 50% w/v formamide and from at least about 0.01M to at least about 0.15 salt for hybridisation, and at least about 0.01M to at least about 0.15M for washing, or (ii) is at least 80% 95% identical with SEQ ID NO: 3, and wherein said nucleic acid molecule, when introduced into a cell, is capable of replicating, acting as an extra-chromosomal element and segregating with cell division.~~

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62. (Currently amended) The isolated nucleic acid molecule according to claim 61 wherein the neocentromere ~~is derived from~~ comprises a region of a mammalian chromosome.
63. (Currently amended) The isolated nucleic acid molecule according to claim 61 wherein the neocentromere ~~is derived from~~ comprises a region of a human chromosome.
64. (Previously presented) The isolated nucleic acid molecule according to claim 63 wherein the nucleic acid molecule binds to centromeric binding proteins (CENP)-A and -C or antibodies thereto.
65. (Previously presented) The isolated acid molecule according to claim 63 wherein the chromosome is human chromosome 10.
66. (Previously presented) The isolated nucleic acid molecule according to claim 65 wherein the neocentromere comprises a region mapping between q24 and q26 on said human chromosome 10.
67. (Currently amended) The isolated nucleic acid molecule according to claim 63 wherein said neocentromere ~~is derived from~~ comprises a region of a human mardel (10) chromosome.
- 68-74. (Cancelled).

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